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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,907	11/14/2003	Ching-Hsun Chao	BHT-3167-164	7660

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EXAMINER	
TALBOT, BRIAN K	
ART UNIT	PAPER NUMBER
1762	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/706,907	CHAO ET AL.	
	Examiner	Art Unit	
	Brian K. Talbot	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 4 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The amendment filed 6/13/07 has been considered and entered. Claims 1-9 and 18-19 have been canceled. Claims 10-17 remain in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. In light of the amendment filed 6/13/07, the 35 USC 112 first and second paragraph rejections have been withdrawn.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

5. Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted state of the art (specification, pg. 1–3) in combination with Park et al. (6,935,915) further in combination with Windischmann et al. (2003/0034721).

Applicant's admitted state of the art (specification, pg. 1–3) teaches the that it is well known to form CNT field emitting sources to from as three-electrode structure (triode) having cathode lines and gate lines separated by an insulating layer and patterning to form the pixel areas. The CNT's are placed on the pixel areas (and on exposed cathode lines if desired) by a screen printing process. The cathode lines are applied by screen printing silver. The spacing and depth between the gate lines are 80 microns and 30 microns respectively.

Park et al. (6,935,915) teaches a method of fabricating field emission display employing carbon nanotubes. The field emission display comprises a cathode, a gate electrode, a gate insulating layer and via holes for subsequent CNT deposition. Stamping is utilized to place the CNT on the desired via holes (abstract).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Applicant's admitted state of the art (specification, pg. 1–3) screen printing process for forming CNT with the stamping process for forming CNT as evidence by Park et al. (6,935,915) with the expectation of achieving similar success with the benefits associated with such a process such as decreasing fabrication cost and ease of mass production as well as preventing undesired sinking and short circuiting of the CNT's.

Applicant's admitted state of the art (specification, pg. 1–3) in combination with Park et al. (6,935,915) fail to teach stamping the CNT's for producing the field emission display with a stamp having a negative mold.

Windischmann et al. (2003/0034721) teaches a method for improving field emission uniformity from a carbon-based array. The method includes forming a mold (20) have emitting areas (22), filling the emitting areas (22) with carbon based material (23). Removing the excess

carbon material (23) leaving carbon emitter structures (24) in the mold (20) and transferring the emitter structures (24) onto a resistive layer (25) and backing layer (26) (col. 2 [0029] – [0034] and Figs. 1-5).

Therefore it would have been obvious at the time the invention was made to have modified Applicant's admitted state of the art (specification, pg. 1–3) in combination with Park et al. (6,935,915) stamping process by incorporating a stamp as evidenced by Windischmann et al. (2003/0034721) to apply the CNT to the respective positions with the expectation of achieving similar success as well as avoiding the need of the columns (15) of Park et al. (6,935,915) while maintaining the advantages associated with stamping the CNT over screen printing taught by Park et al. (6,935,915).

Response to Amendment

6. Applicant's arguments filed 6/13/07 have been fully considered but they are not persuasive.

Applicant argued that Park et al. (6,935,915) teaches screen printing the columns (15) and not stamping.

The Examiner agrees in part. While Park et al. (6,935,915) teaches forming the columns (15) by screen printing, Park et al. (6,935,915) also teaches forming the CNT's by a stamping process on the tops of the columns (15). Hence, Park et al. (6,935,915) utilizes a "combination"

process for forming the emitting sources. Applicant's claims are not limited to exclude such a process.

Applicant argued that there is no motivation to combine the reference as the Examiner has done in the rejection.

The Examiner disagrees. Applicant is reminded that the test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges,* 783 F.2d 1038. In this case, the Park et al. (6,935,915) supplied "motivation" for utilizing the stamping means as detailed in the rejection above. Hence, proper motivation has been provided to make the combination as suggested by the references.

Regarding claim 17 which recites the "process of forming the negative mold", it is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of success regardless of how the negative mold since the negative mold was shown to be known to form emitting sources. Windischmann et al. (2003/0034721) teaches improving field emission uniformity with the use of a "negative mold".

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

B K Talbot 8/20/07

Brian K Talbot
Primary Examiner
Art Unit 1762

BKT